

MULTI-MODAL QUALITY OF SERVICE PROJECT

PROBLEM STATEMENT

Traffic congestion continues to mount in our urban areas, with seemingly limited ability to effectively respond at the local “planning” level. Capacity is not being provided to satisfy demand and community highway level of service (LOS) standards. Consequently, TEA-21 has recently called for communities to provide a multi-modal transportation system to respond to the increasing pressures of traffic congestion.

While all of Florida’s Metropolitan Planning Organizations have Mobility Management Plans (Congestion Management Systems) with alternative strategies in place to precede the addition of new lanes, the state does not have a uniform method to evaluate their impact on a facility’s level of service; and the currently available tools are not adequate to measure the impacts of non-auto modes. In other words, the pressure is increasing for local governments and planning organizations to respond to the issues of congestion by planning for multi-modal transportation systems, but the tools to assist in these efforts are not optimal.

OBJECTIVES

The overall purpose of this research project was to develop a quality of service analysis for transit, pedestrian, and bicycle modes. The effort was driven by four major objectives:

1. To perform a national literature search of multi-modal Level of Service methodologies in order to implement the best possible methodology in Florida.
2. To apply and validate Bicycle Level of Service and Roadside Pedestrian Condition techniques to measure the performance of roadway segments in two districts.
3. To apply and test new Highway Capacity Manual performance measures for transit in test districts.
4. To refine and evaluate latent bicycle and pedestrian demand model process in order to determine that adequate demand exists for proposed facility improvements.

FINDINGS AND CONCLUSIONS

The following summarize the findings and conclusions:

1. All of the currently used methodologies investigated during the literature search represent varying degrees of improvement over past efforts. Supply-side methodologies (environment factors and compatibility measures) and relative demand-side methodologies (facility demand)

offer unique contributions and oftentimes are used in conjunction with each other to provide a more comprehensive assessment. Each has shortcomings, however, and the methodologies designed as part of this research project are an attempt to overcome these deficits.

2. The *Pedestrian LOS Model* refined in this research provides a measure of a roadway segment's performance with respect to the pedestrian's primary perception of safety or comfort; as such, it serves as the basis for the Florida Department of Transportation's statewide multi-modal (esp., pedestrian mode) level of service evaluation techniques.
3. This research provides a recommended planning method for the determination of quality of service for scheduled bus service en-route segments. The methodology is a tool that will assist planners in Florida complete multi-modal quality of service evaluations.
4. This project updated, validated, and calibrated the Latent Demand Score Model to help with the evaluation of multi-modal processes.

The research results better allow a roadway facility to be viewed as a multimodal facility and allow the influence of various factors to affect each of the modes. From a policy level, this allows Florida's Level of Service analysis to be more consistent with TEA-21, which emphasizes multimodalism. This research also leads the way for future editions of the Highway Capacity Manual to adopt a multimodal approach.

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